

ABSTRACT OF THE INVENTION

The present invention is directed to methods and compositions for TnpI-mediated genetic engineering using the *Bacillus thuringiensis* recombinase TnpI and the TnpI recombination substrates TRT or TRT', and variants thereof. In particular, the invention relates to TRT or TRT' sequences, and variants thereof, vectors, cells and kits useful for TnpI-mediated genetic recombination, as well as methods for the use of TRT or TRT' sequences for TnpI-mediated genetic engineering.

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